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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/616,093	07/08/2003	Steven Verhaverbeke	4733 USA D01/TCG/TPG/OTHE	9641
7590 02/25/2008 Michael A. Bernadicou, Esq. BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN LLP Seventh Floor 12400 Wilshire Boulevard Los Angeles, CA 90025-1026			EXAMINER MARKOFF, ALEXANDER	
			ART UNIT 1792	PAPER NUMBER
			MAIL DATE 02/25/2008	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/616,093	<b>Applicant(s)</b> VERHAVERBEKE ET AL.	
	<b>Examiner</b> Alexander Markoff	<b>Art Unit</b> 1792	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 31 October 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 32, 34, 36-45, 47-49 and 51-55 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) \_\_\_\_\_ is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

### **DETAILED ACTION**

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 10/31/07 has been entered.

### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 32, 37, 41, 47, 48, 51 and 52 are rejected under 35 U.S.C. 102(b) as being anticipated by EP 0905747.

EP 0905747 teaches a method as claimed. See entire document, especially Parts [007] – [0017] and [0024] – [0031].

The method comprises spinning a wafer and application to the spinning wafer an etchant or cleaning solution and a gaseous substance having a lower surface tension

than water and rinsing and drying. The referenced steps are disclosed in the claimed order.

3. Claim 32, 37, 41, 47, 48, 51 and 52 are rejected under 35 U.S.C. 102(e) as being anticipated by Mertens et al (US Patent No 6,491,764).

Mertens et al teach a method as claimed. See entire document, especially column, 2, line 36 – column 5, line 27 and column 5, line 61 – column 9, line 11. The method comprises spinning a wafer and application to the spinning wafer an etchant or cleaning solution and a gaseous substance having a lower surface tension than water and rinsing and drying. The referenced steps are disclosed in the claimed order.

4. Claims 32, 34, 36-38, 40-44, 47-49 and 53-55 are rejected under 35 U.S.C. 102(e) as being anticipated by Lorimer (US Patent No 6,460,552).

Lorimer teaches a method as claimed. See entire document, especially Figures 4, 7, 7a, columns 7-12.

### ***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of

the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

8. Claims 39 and 45 are alternatively rejected under 35 U.S.C. 103(a) as being unpatentable over Lorimer in view of Chang et al (US Patent No 6,273,099).

Lorimer teaches the claimed method except for recitation of temperature of the rinsing water.

Chang et al teach that it was known to rinse the wafers with heated water. Chang et al further teach that rinsing with heated to the claimed temperature water improves cleaning, allows to eliminate some of the chemical cleaning steps and thereby provides considerable cost saving.

It would have been obvious to an ordinary artisan at the time the invention was made to rinse the wafers with heated water in the method of Lorimer with reasonable

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expectation of success in order to improve cleaning and to reduce the operation cost, because Chang et al teach that rinsing with heated water would provide such benefits.

9. Claims 38 and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over any one of Mertens et al or EP 0905747 in view of Chang et al (US Patent No 6,273,099).

Mertens et al and EP 0905747, having similar disclosure teach the claimed method except for recitation of temperature of the rinsing water.

Chang et al teach that it was known to rinse the wafers with heated water. Chang et al further teach that rinsing with heated to the claimed temperature water improves cleaning, allows to eliminate some of the chemical cleaning steps and thereby provides considerable cost saving.

It would have been obvious to an ordinary artisan at the time the invention was made to rinse the wafers with heated water in the methods of Mertens et al or EP 0905747 with reasonable expectation of success in order to improve cleaning and to reduce the operation cost, because Chang et al teach that rinsing with heated water would provide such benefits.

### ***Response to Arguments***

10. Applicant's arguments filed 10/31/07 have been fully considered but they are not persuasive.

The applicants amended the claims to recite that the liquid or the vapor produced from the liquid having lower surface tension than water is applied to the wafer not simultaneously with application of the DI water to the surface of the wafer.

The applicants allege that the applied prior art does not teach such limitations.

With respect to the rejections made over the EP document and Mertens, the applicants allege that these documents are limited to a gaseous substance and that the applied documents do not teach not simultaneous application of water and the liquid or gas with lower tension than water.

This is not persuasive because in contrast to the applicant's arguments the teachings of the applied documents are not limited to such.

The applied documents teach not simultaneous application of different liquids. See at least column 3, line 61 – column 4, line 16 of Mertens and the corresponding part of the EP document.

The applied documents teach application of liquid. See at least column 6, lines 11-22 and column 10, lines 10-14 16 of Mertens and the corresponding part of the EP document.

With respect to the rejections made over Lorimer the applicants allege that the applied document does not teach not simultaneous application of DI water and a vapor or a liquid having surface tension lower than water.

This is not persuasive. Lorimer teaches application of water vapor and/or water to the wafer separate from application of IPA-water vapor and/or liquid. The IPA-water

mixture is readable on the liquid having surface tension lower than water. See at least column 7, lines 34-45, column 12, lines 5-30 and Figure 7a.

The applicants again argue that Lorimer teach application of vapor in a gaseous state, while the claims require application of a liquid DI water.

The applicants rely on their own unsupported statement that the steam does not condense until after it is applied.

The examiner disagrees. Lorimer teaches cleaning with steam and steam condensate. Nothing on the record indicates that there is no condensation until application to the wafer can be found in the document. In opposite Lorimer teaches application, cleaning with condensate, at least some of the vapor is condensed. It is also noted that Lorimer teaches that the vapor entering the nozzle area 138 is quickly condensed (column 10, lines 34-37). Such supports at least some condensation of the vapor in the nozzle of Lorimer.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alexander Markoff whose telephone number is 571-272-1304. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Barr can be reached on 571-272-1414. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Alexander Markoff  
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AM

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